of said waveform, characterised by:

providing, as the first data stream, a first sequence of complex numbers, having real and imaginary data points which together represent sinusoid data points;

selecting, from a random access memory (14), as the second data stream, a second sequence of real or complex numbers;

multiplying said first and second sequences so as to produce a third data stream representing complex products of said first and second sequences; and

converting said third data stream from digital to the analog of said waveform.

Dwg.1/3

Abstract (Equivalent): US 5001660 A

A digital mixer is supplied with two digitised input **signals** in complex form. The product of the complex input **signals** is converted to analog form and provides the desired output **signal** without any alias terms. The first input **signal** is desirably stored in a first memory as a sequence of data points corresponding to a complex exponential sinusoid. The second input **signal** is a **baseband** excitation waveform that is also stored in complex form in a memory. Operands from these two sources are provided periodically to the mixer for complex multiplication. The sequence of sinusoid operands provided from the first memory is determined by a phase counter that indexes through the memory by a delta-theta term. Delta-theta is selected so that the data indexed thus corresponds to samples of a sine wave of the desired frequency.

If delta-theta indexes a **signal** phase intermediate two complex data in the memory, an interpolated value is provided. USE - **Waveform generation** for network and spectrum analysers.

(8pp

46/3,AB/37 (Item 20 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008374065
WPI Acc No: 1990-261066/199034
Related WPI Acc No: 1992-215880; 1992-299787; 1993-075962; 1994-007128; 1994-263688; 1994-316585; 1994-332734; 1995-074959; 1996-277412; 1996-277416; 1996-333712; 1997-319488; 1998-455909; 2001-234395; 2001-380520; 2002-081753
XRPX Acc No: N90-202253

Phase modulated spectrophotometry - determining concentration of absorptive constituent in scattering medium, using **signal** modulation techniques

Patent Assignee: NON INVASIVE TECHNOLOGY INC (NONI-N); NIM INC (NIMN-N); NON-INVASIVE TECH (NONI-N)
Inventor: CHANCE B
Number of Countries: 015 Number of Patents: 009
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9009003	A	19900809				199034	B
CA 2007776	A	19900806				199043	
US 4972331	A	19901120	US 89307066	A	19890206	199049	
EP 456637	A	19911121	EP 89910374	A	19890818	199147	
US 5122974	A	19920616	US 89307066	A	19890207	199227	
			US 90578063	A	19900905		
EP 456637	A4	19920909	EP 89910374	A		199523	

SG 64313	A1	199904	SG 962835	A	198908	199933
CA 2007776	C	19991102	CA 2007776	A	199001	200012
KR 145114	B1	19980817	WO 89US3562	A	19890818	200021
			KR 91700848	A	19910806	

Priority Applications (No Type Date): US 89307066 A 19890206; US 90578063 A 19900905

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9009003	A		2		
Designated States (National): KR					
Designated States (Regional): AT BE CH DE DK FR GB IT LU NL SE					
US 4972331	A		11		
EP 456637	A		2		
Designated States (Regional): DE FR GB					
US 5122974	A		10	G06F-015/42	Cont of application US 89307066 Cont of patent US 4972331
SG 64313	A1			G06F-015/00	
CA 2007776	C	E		G01J-003/427	
KR 145114	B1			G06F-019/00	

Abstract (Basic): WO 9009003 A

A waveform and electromagnetic radiation of a known wavelength are generated for propagation in the scattering medium. The waveform is imposed on the radiation to **generate** a modulated **waveform**. The radiation is coupled to the scattering medium. An altered waveform is detected comprising the portion of radiation migrating through the scattering medium.

The variation associated with the radiation due to propagation and absorption in the scattering medium is determined by comparing the altered waveform witgh a reference waveform, and is converted to a quantative measure of the concentration of an absorptive constituent in the scattering medium.

ADVANTAGE - Relies an inexpensive technology.

Dwg.1/4

Abstract (Equivalent): US 5122974 A

The photon migration **data** is converted, using the principles of time resolved spectroscopy, to determine the concentration of an absorptive constituent in a scattering medium, such as the concentration of haemoglobin in a brain of other tissue. A dual wavelength phase modulation system allows the clinical application of the advantages of time resolved spectroscopy in an economical and commercially feasible embodiment. USE - For studying photon migration using **signal** modulation techniques such as **time**, frequency and phase modulation. (Dwg.2/4)

US 4972331 A

A device studies photon migration using **signal** modulation techniques such as **time**, frequency and phase modulation. The photon migration **data** may then be converted, using the principles of time-resolved spectroscopy, to determine the concentration of an absorptive constituent in a scattering medium, such as the concentration of hemoglobin in a brain of other tissue. The methods and appts. provide as a specific embodiment, a dual wavelength phase modulation system which allows the clinical application of time resolved spectroscopy in a commercially feasible embodiment.

(11pp

46/3,AB/38 (Item 21 from file: 350)

DIALOG(R)File 350:Derwent WPIX

007963633
WPI Acc No: 1989-228745/198932
XRPX Acc No: N89-174520

Magnetic resonance imaging insensitive to motion - has **HF** coil and pulse coupler fed with **HF signal** from **synthesiser** controlled by processor, and is connected to VDU

Patent Assignee: ELSCINT LTD (ELSC)
Number of Countries: 003 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
DE 3902585	A	19890803	DE 3902585	A	19890128	198932	B
NL 8900198	A	19890816				198936	
US 4949041	A	19900814	US 89300980	A	19890124	199035	

Priority Applications (No Type Date): IL 85259 A 19880129
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 3902585	A		7		

Abstract (Basic): DE 3902585 A

Inside the magnet (12) the field is produced by the field generator (13) and gradient field generators Gx (14), Gy(16) and Gz(17). The **HF** coil in the magnet and the **HF** pulse coupler (18) is fed with a **HF signal** from the **synthesiser** (19) controlled by the control processor (21). The coupled pulse is fed through the duplexer (22) to the **HF** coil in the magnet (12).

In the receiving mode the **signal** is connected through the duplexer (22) to the receiver (24), the A/D converter (25) and the image processor (26). The latter has a conjugation circuit (27), a memory (28) and drives a VDU. A pulse shaper generator (31) produces a special reading gradient pulse.

ADVANTAGE - Insensitivity to motion is achieved without using phase feedback gradients and without idling current problems.

.1/2

Abstract (Equivalent): US 4949041 A

A patient is inserted into a large static magnetic field to align spins in the patient with the large static magnetic field. The spins in the patient are subjected to **radio** frequency pulses to cause the spins to be tipped from alignment with the large static magnetic field. A **signal** is detected from the tipped spins. The **signal** normally has a leading wing, a central section rising to an apex and falling to a trailing wing. Gradient pulses are applied to localise the **signal** source to a selected portion of the patient. The step of applying gradient pulses includes the step of applying a view gradient pulse that begins its maximum amplitude after the leading wing section and before the apex of the **signal**. A digitised **signal** is Fourier transformed to obtain digitised **data**. Using single side encoding techniques that comprise conjugating the digitised **data** to acquire full image **data**, the reconstructed image is insensitive to motion and thereby significantly reducing motion artifacts.

USE - Provides motion insensitive **scanning** in a **magnetic resonance** imaging system. (7pp)

46/3,AB/39 (Item 22 from file: 350)

DIALOG(R)File 350:Derwent IX

007822277
WPI Acc No: 1989-087389/198912
XRAM Acc No: C89-038644
XRPX Acc No: N89-066662
Nuclear resonance-spectrometer - has 2 mixing stages and an A-D converter to convert nuclear resonance **signals** into digital data
Patent Assignee: PHILIPS PATENTVERWALTUNG GMBH (PHIG)
Inventor: HEIZEL T; KUHN M H; PROKSA R; VANDENBERG N J M
Number of Countries: 005 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 307989	A	19890322	EP 88201866	A	19880901	198912	B
DE 3730293	A	19890323	DE 3730293	A	19870910	198913	
US 4873486	A	19891010	US 88241635	A	19880908	198950	

Priority Applications (No Type Date): DE 3730293 A 19870910
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 307989	A	G	11		
Designated States (Regional): DE FR GB NL					
US 4873486	A		7		

Abstract (Basic): EP 307989 A

The resonance spectrometer comprises a receiving circuitry including at least two mixing stages to convert the nuclear resonance **signals** into a lower frequency range and whereby an A/D-converter converts those nuclear resonance **signals** already converted into the lower frequency range into digital data. The **scanning** frequency is at least twice as high as the highest frequency of the converted nuclear resonance **signal**. In the first mixing stage, the nuclear resonance **signal** is mixed with a first frequency (f1) being near the LAMOR-frequency level. The output **signal** of the first mixing stage is mixed with a second frequency (f2) in a subsequent second mixing stage. Frequency (f2) deviates from the difference frequency and is actually less than the first frequency.

USE/ADVANTAGE - For nuclear resonance-spectrometers where two mixing stages convert the resonance **signals** into a lower frequency range and an A/D-converter transforms the already converted **signals** into digital data. Interference due to harmonics of the mains frequency and so-called 1/f-noise is suppressed, as the effective frequency is higher than the frequency range for those interferences. Any problems in connection with conversion processes are avoided.

3/3

Abstract (Equivalent): US 4873486 A

Magnetic resonance spectrometer has a receiving branch in which mixing stages are included to transpose a received spin resonance **signal** by mixing it with a first frequency in the vicinity of the Larmor frequency and mixing that output in a second stage with a second frequency which deviates from the absolute frequency of the distance between the Larmor frequencies and the first frequency and which is substantially lower than the first frequency. The useful **signal** is transposed into a higher frequency range than the **baseband**, which can be processed by commercial analogue-digital convectors.

ADVANTAGE - DC drift problem is eliminated and interference is suppressed. (7pp

46/3,AB/40 (Item 23 from file: 350)
DIALOG(R)File 350:Derwent WPIX

007587246
WPI Acc No: 1988-221178/198832
XRPX Acc No: N88-168700
Controlling steps of magneto resonance image **scanner** - reading control and delay commands from timing pattern memory
Patent Assignee: TOSHIBA KK (TOKE)
Inventor: KOJIMA F; MITOMI M
Number of Countries: 001 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
DE 3802082	A	19880804	DE 3802082	A	19880125	198832	B
DE 3802082	C	19921203	DE 3802082	A	19880125	199249	

Priority Applications (No Type Date): JP 8715728 A 19870126
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 3802082	A		6		
DE 3802082	C		7	G05B-019/00	

Abstract (Basic): DE 3802082 A
A magneto resonance image **MRI** body **scanning** system has a magnetic field generator (1) to produce a static magnetic field, an **RF** pulse transmitter (2) and a magnetic field generator (3) to produce a gradient magnetic field. These provide the field effect to which the patient (P) is subjected.

Signals transmitted through the body are received by a magneto-resonance receiver (5) and are fed to an image processor (6) under the direction of the system controller (4). A keyboard (8) provides input for manual operation. **Signals** are generated by the image process for display (7).

USE - Body **scanner** sequence control.

1/3

Abstract (Equivalent): DE 3802082 C
The device receives **magnetic resonance** (**MR**) **signals** and includes a **time** plane memory (11) for storing the commands for controlling each step and also the delays. A unit (13) controls the processing according to the commands for each step in teh time plane memory. A timer (15) gives increments to an address for reading from the time plan memory. A memory (12) stores delay **data**. A memory control unit (10) controls the reading out of delay **data** from the memory and holds the incrementation of the address for a time interval determined by the **data** when a command is read from the time plan memory. USE/ADVANTAGE - Quick and simple change of delay commands is provided with small memory capacity.

(Dwg.2/3

46/3,AB/41 (Item 24 from file: 350)
DIALOG(R)File 350:Derwent WPIX

007109906
WPI Acc No: 1987-109903/198716

Related WPI Acc No: 1988-[illegible]193
XRPX Acc No: N87-082727

Reducing artifacts due to periodic **signal** variations in **NMR** imaging - selecting non-monotonic temporal order of application of magnetic field gradient to approximate predetermined relationship

Patent Assignee: GENERAL ELECTRIC CO (GENE)
Inventor: GLOVER G H; PELC N J
Number of Countries: 012 Number of Patents: 007
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 218838	A	19870422	EP 86111070	A	19860811	198716	B
US 4663591	A	19870505	US 85766733	A	19850816	198720	
FI 8602052	A	19870217				198723	
KR 9005451	B	19900730				199140	
EP 218838	B	19920304				199210	
DE 3684080	G	19920409				199216	
FI 94679	B	19950630	FI 862052	A	19860516	199532	

Priority Applications (No Type Date): US 85766733 A 19850816
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 218838	A	E	51		
Designated States (Regional): CH DE FR GB IT LI NL SE					
US 4663591	A		22		
EP 218838	B				
Designated States (Regional): CH DE FR GB IT LI NL SE					
FI 94679	B			G01N-024/08	Previous Publ. patent FI 8602052

Abstract (Basic): EP 218838 A

Scan data, composed of a number of views, are acquired for imaging the object. The acquisition of each view includes the implementation of a pulse sequence to generate a **NMR signal** and application of a magnetic gradient along at least one dimensional axis of the object. The magnetic field gradient is characterised by a parameter, e.g. amplitude or direction, adjustable from view to view to encode spatial information into the **NMR signal**.

The parameter value is selected just prior to implementation of the pulse sequence for that view and depends on the phase of **signal** variation at that **time**. The final view order depends on the measured phase during the **scan**. The view order can be continuously adjusted to obtain optimum artifact reduction.

USE - Ghost artifact reduction or elimination in various **NMR** imaging techniques, including Fourier transform and multiple angle projection reconstruction.

Dwg.1/20

Abstract (Equivalent): EP 218838 B

A method for reducing artifacts in an acquired desired image while a portion of an object is being examined using **nuclear magnetic resonance** techniques, which techniques include measurement of imaging **data** about the object portion through the implementation of a plurality of views, each made up of at least one pulse sequence which includes irradiation of the object portion by an **RF** excitation pulse at the Larmor frequency to produce a **NMR signal**, application of a pulsed magnetic field gradient along at least one dimensional axis of the object and acquisition of **data** for producing the desired image, the magnetic field having a parameter value adjustable to have a different value in each view so as to encode spatial information into the **NMR signal**, and the desired image being subject to said artifacts due to substantially

periodic **signal** variations, said method comprising: (a) selecting a predetermined relationship between the **signal** variations and the parameter value of said magnetic field gradient, wherein selection of said relationship defines a correspondence between a desired parameter value to be implemented in a given pulse sequence and the phase of said **signal** variations; (b) measuring the phase of said **signal** variations in the course of implementing said plurality of views; and (c) selecting, based on said phase measurements, a non-monotonic temporal order of application of said magnetic field gradient so as to approximate said predetermined relationship. (36pp)n

Abstract (Equivalent): US 4663591 A

The acquisition of each view includes the implementation of a pulse sequence to generate an **NMR signal** and application of a magnetic gradient along at least one dimensional axis of the object. The field gradient is characterised by a parameter e.g. amplitude or direction adjustable from view to view to encode spatial information into the **NMR signal**.

The parameter value is selected just prior to implementation of the pulse sequence for that view and depends on the phase of the **signal** variation at that point in time. The final view order depends on the measured phase during the **scan**. The view order may be continuously adjusted to obtain optimum artifact reduction.

ADVANTAGE - Provides ghost artifact reduction with view order selected in real time. (22pp)p

46/3,AB/42 (Item 25 from file: 350)
DIALOG(R)File 350:Derwent WPIX

004623117
WPI Acc No: 1986-126460/198620
XRPX Acc No: N86-093466

Determn. of nuclear spin magnetisation distribution in body - using two alternating gradient magnetic fields at right angles

Patent Assignee: PHILIPS GLOEILAMPENFAB NV (PHIG)
Inventor: DENBOEF H G
Number of Countries: 009 Number of Patents: 009
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 181015	A	19860514	EP 85201493	A	19850918	198620	B
NL 8402959	A	19860416				198621	
CN 8501765	A	19870131				198815	
CN 8505984	A	19870225				198820	
CA 1247699	A	19881228				198905	
US 4812762	A	19890314	US 87136515	A	19871222	198913	
IL 76522	A	19890731				198939	
EP 181015	B	19891206				198949	
DE 3574620	G	19900111				199004	

Priority Applications (No Type Date): NL 842959 A 19840928

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 181015	A	G	21		
Designated States (Regional): BE DE FR GB					
EP 181015	B	G			
Designated States (Regional): BE DE FR GB					

Abstract (Basic): EP 181015 A

The two alternating gradient fields are produced by a system including four coils (3a,3b) whose field extends in the Z direction, and four rectangular or Go lay coils (5) which give an orthogonal field in the Y direction. A two-dimensional plane section of the three dimensional image frequency space can be established with a uniform density of measurement points.

Each **magnetic resonance signal** can be built up from several **scans**, leading to a significant acceleration of the overall procedure for a three-dimensional image. Pref. the periods and amplitudes of the alternating gradient fields are equal but phase shifted by 90 deg.

USE/ADVANTAGE - For biomedical **NMR** imaging, the time required to produce an image of the three-dimensional nuclear magnetisation distribution is reduced.

Abstract (Equivalent): EP 181015 B

A method of determining a nuclear-magnetization, distribution in a region of a body which is situated in a generated steady, uniform magnetic field, and a) an **r.f.** electromagnetic pulse is generated in order to cause a precessional motion of the magnetisation of the nuclei in the body, resulting in a resonance **signal**, b) after a preparation period, a steady gradient magnetic field and an alternating, periodic gradient magnetic field are generated during one or more measurment periods, said measurement period (preiods) being divided into a number of sampling intervals for taking a number of **signal** samples of the resonance **signal**, c) each **time** after a waiting period, the steps a) and b) are repeated a number of times, the duration of the preparation period and/or the integral over the preparation period of at least one gradient magnetic field applied during the preparation period each time having a different value in order to obtain a group of **signal** samples from which, after a **signal** transformation, an image of nuclear magnetisation is determined, characterised in that during the measurement period there is applied a second periodic alternating gradient magnetic field whose gradient direction extends perpendicularly to the gradient direction of the first-mentioned alternating gradient magnetic field. (12pp)

Abstract (Equivalent): US 4812762 A

NMR images (density distributions, location-dependent spectroscopy) are made by utilising two alternating gradient fields whose gradient directions are mutually perpendicular. Thus, a two-dimensional ''plane'' in the 3-D image frequency space can be filled with a uniform density of measurement points.

Per **FID signal** more **signal** samples can be taken, resulting in a substantial reduction of the entire measurement procedure for a 3-D image. This method is very suitable for imaging of 3-D density distributions, 2-D or 3-D spectroscopy etc.. The periods and the amplitudes of the alternating gradient fields are preferably the same however these fields are preferably phase-shifted 90 deg. with respect to one another.

ADVANTAGE - Reduced time to form image. (9pp)i

46/3,AB/43 (Item 26 from file: 350)
DIALOG(R)File 350:Derwent WPIX

004242820
WPI Acc No: 1985-069698/198512
XRPX Acc No: N85-052088

Determination of average frequency and flow velocity - deriving sum and

difference expressions by multiplying delayed and non-delayed in-phase and phase shifted **signals**
Patent Assignee: GENERAL ELECTRIC CO (GENE)
Inventor: BARBER W D; EBERHARD J W; KARR S G
Number of Countries: 003 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
DE 3431001	A	19850314	DE 3431001	A	19840823	198512	B
GB 2145528	A	19850327	GB 8416975	A	19840704	198513	
US 4542657	A	19850924	US 83526856	A	19830826	198541	
GB 2145528	B	19880203				198805	
DE 3431001	C	19910620				199125	

Priority Applications (No Type Date): US 83526856 A 19830826
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 3431001	A		31		

Abstract (Basic): DE 3431001 A

Demodulated in phase (1) and phase quadrature (90 deg. phase shift) (Q) **signals** are analysed in a scanner (25,26) and delayed in a delay controller (27,28). The delayed and the undelayed in phase and phase quadrature **signals** are multiplied producing a difference and a sum expression.

The noise in both expressions represented by a simple reverse tangent algorithm whose denominator contains products of time scans, which at least for a period of time are displaced relative to themselves, is uncorrelated and cleared by a low pass filter (35,36).

USE/ADVANTAGES - Pulsed ultrasonic Doppler system with quadrature demodulation, for measuring and indicating blood speed as a function of time. Higher performance with lower cost than the usual Fourier transformation method. Accurate estimates of the average instantaneous frequency of **time** variable **signals** for favourable and unfavourable **signal**-to-noise ratios, by improved time range method.

Abstract (Equivalent): GB 2145528 B

An ultrasonic system for measuring the velocity of blood and similar liquids, the system comprising: means for transmitting pulses of ultrasound that insonify a chosen sample volume and for receiving echoes; means for coherently demodulating echo **signals** to **baseband** using phase quadrature emission frequency references and focusing and summing the demodulated echo **signals** to produce in-phase and quadrature **time** varying Doppler **signals**; means for gating the Doppler **signals** after pulse transmissions to extract in-phase and quadrature time samples, Ii and Qi, representing echoes backscattered from the sample volume; means for determining the mean frequency, omega of the **time** varying **signal** in real **time**, and thus the frequency shift, by producing time samples Ii-l and Qi-l delayed by one sample time period and processing the undelayed samples Ii and Qi and delayed samples by multiplying the Li and Qi-l samples and the Qi and Li-l samples, and subtracting the respective cross-terms to yield a difference **signal**, and by multiplying the Ii and Ii-l samples and the Qi and Qi-l samples and adding the products to form a sum **signal** in which noise is uncorrelated, and thereafter separately smoothing the difference and sum **signals** to remove substantially all uncorrelated noise, and deriving the arc tangent of the ratio of the smoothed difference **signal** to the smoothed sum **signal**; and means for deriving means blood velocity from the frequency shift and displaying velocity

as a function of time

Abstract (Equivalent): US 4542657 A

A **time** varying **signal** is demodulated with phase quadrature references and is then sampled at designated time periods to yield in-phase and quadrature samples. The in-phase and quadrature samples are delayed by an integer number of time periods, first being multiplied with an undelayed quadrature sample and the second with an undelayed in-phase sample. The respective cross terms are subtracted to produce difference **signals**.

The delayed and undelayed in-phase time samples and delayed and undelayed quadrature time samples are both multiplied, products these products being added to produce sum **signals** in which noise is uncorrelateddifference and sum **signals** are separately low pass filtered to smooth and reduce noise in both, the former being divided by the latter. The mean frequency of the **time** varying **signal** is derived from the arc tangent of the above ratio.
(12pp)t

46/3,AB/44 (Item 1 from file: 347)
DIALOG(R)File 347:JAPIO

07142614
ORGANISM INFORMATION **SIGNAL** PROCESSING METHOD AND DEVICE AND STORAGE MEDIUM STORING PROGRAM THEREFOR

PUB. NO.: 2002-010987 [JP 2002010987 A]
PUBLISHED: January 15, 2002 (20020115)
INVENTOR(s): MATSUMURA TAKESHI
APPLICANT(s): MATSUMURA TAKESHI
APPL. NO.: 2000-195357 [JP 2000195357]
FILED: June 29, 2000 (20000629)

ABSTRACT

PROBLEM TO BE SOLVED: To provide organism information **signal** processing method and device and a storage medium storing the program for efficiently and effectively advancing the analysis processing of organism information.

SOLUTION: Feature point permutation **data** are extracted corresponding to the mode that respective first, second and third differential **signals** cross or contact a zero level provided with a dead zone from the **time** sequential discrete **signals** of the organism information. Also, a directed line segment vector induced from the feature point group of the discrete **signals** is expressed by permutation set **data** and the part of a **waveform generated** in the discrete **signals** is identified and analyzed by the **data.** Further, by remotely changing and adapting a organism information analysis method matched with the purpose of analysis and the organism condition of a testee, the analysis of the organism information and the management of a living body are effectively performed.

46/3,AB/45 (Item 2 from file: 347)
DIALOG(R)File 347:JAPIO

06739477
MRI APPARATUS AND **MR** IMAGING METHOD

PUB. NO.: 2000-325327 [JP 2000325327 A]
PUBLISHED: November 28, 2000 (20001128)
INVENTOR(s): KASAI YOSHIMORI
KOYAKATA NAOYUKI
APPLICANT(s): TOSHIBA CORP
APPL. NO.: 11-142101 [JP 99142101]
FILED: May 21, 1999 (19990521)

ABSTRACT
PROBLEM TO BE SOLVED: To set a pulse sequence quickly, with small operational labor and with good accuracy by setting a pulse sequence for generating plural echo **signals** per one **time** application of **RF** excitation pulses to set the **data** collection time, and determining the number of echos and the number of **RF** excitation pulse shots.

SOLUTION: A host computer 6 receives information instructed by an operator according to a stored software procedure, and gives a command of sequential information to a sequencer 5. A user can arbitrarily set the number of slices to be done during the repeat time TR and the **scan** time corresponding to a variable length echo **train** according to a matrix size and the number of shots of a photographed image. The sequencer 5 stores pulse sequence information sent from the host computer 6, controls a series of operation of a inclined magnetic field power supply 4, a transmitter 8T, and a receiver 8R, once inputs digital **data** of an **MR signal** from the receiver 8R, and transfers the **data** to an arithmetic unit 10 for conducting reconfiguration processing.

46/3,AB/46 (Item 3 from file: 347)
DIALOG(R)File 347:JAPIO

05479442
MAGNETIC RESONANCE IMAGING SYSTEM

PUB. NO.: 09-094242 [JP 9094242 A]
PUBLISHED: April 08, 1997 (19970408)
INVENTOR(s): KONO OSAMU
OHARA HIROSHI
APPLICANT(s): SHIMADZU CORP [000199] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 07-276259 [JP 95276259]
FILED: September 29, 1995 (19950929)

ABSTRACT
PROBLEM TO BE SOLVED: To control artifacts by deriving amount of shift between the phase of a **signal** peak and the position of the **signal** peak on each echo **signal** by using **data** generated by prescanning, and by performing based on the above result a Fourier transformation and image reconstruction while applying rotating processing on **data** arrangement made by the above **scanning**.

SOLUTION: An **RF** coil to receive **nuclear magnetic resonance(NMR) signals** generated from a body to be inspected is disposed, and so is a magnet assembly 11 to generate inclined magnetic field according to **waveform signals generated** at a predetermined timing in a **waveform generating** circuit 53. Then, pulse sequence is implemented until the required number of phase encoded steps is achieved while varying magnitude of the inclined magnetic field Gp pulse, wherein raw **data** are collected. Sequentially, upon having obtained **data** with phase errors corrected, strings of **data** obtained from **signals** applied with negative inclined magnetic field Gr are laid in a reverse direction, whereas a one-dimensional Fourier transformation is performed, and then respective **data** in a two-dimensional **data** arrangement are rotated, thereby correcting phase errors caused from primary errors in the frequency direction.

46/3,AB/47 (Item 4 from file: 347)
DIALOG(R)File 347:JAPIO

05479437
NUCLEAR MAGNETIC RESONANCE IMAGING SYSTEM

PUB. NO.: 09-094237 [JP 9094237 A]
PUBLISHED: April 08, 1997 (19970408)
INVENTOR(s): ISHIKAWA AKIHIRO
KONO OSAMU
APPLICANT(s): SHIMADZU CORP [000199] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 07-253784 [JP 95253784]
FILED: September 29, 1995 (19950929)

ABSTRACT

PROBLEM TO BE SOLVED: To suppress generation of artifact by extracting only the same echo **signal** having the same **time** relation from refocused **RF** pulses and by arranging pulse for diffusing of an oblique magnetic field pulse for reading so as to make the peak time of each echoes even.

SOLUTION: In advance of performance of pulse sequence for photographing, a sequence not applying pulse Gy is performed, only spin echo **signal** having the same **time** relation from each of focus pulses is read by a computer 1. Next, the peak time point is obtained arithmetically by least square method from the collected **data**, an estimated value of maximal distance among peak time points is obtained and also an estimated value of every amplitude values is obtained by **scanning** sequences while changing the amplitude within a desired range. Next, by setting an amplitude value being equal to or the nearest to 0 from a group of the estimated values as an arranged value of a dephasing pulse Dp and after obtaining and arranging an optimal amplitude value of the pulse Dp, the pulse sequence for photographing is performed.

46/3,AB/48 (Item 5 from file: 347)
DIALOG(R)File 347:JAPIO

05110883

MAGNETIC RESONANCE TOMOGRAPHIC EQUIPMENT

PUB. NO.: 08-066383 [JP 8066383 A]
PUBLISHED: March 12, 1996 (19960312)
INVENTOR(s): KOYABU KAZUYA
APPLICANT(s): SHIMADZU CORP [000199] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 06-228951 [JP 94228951]
FILED: August 29, 1994 (19940829)

ABSTRACT

PURPOSE: To provide **magnetic resonance** tomographic equipment having the capability of correcting backward characteristic deterioration in a gradient magnetic field pulse, even upon the occurrence of the deterioration, due to an active shield gradient magnetic field coil.

CONSTITUTION: A correction circuit 20 is formed out of a **signal** reversal section 19, selector switches S(sub 1) to S(sub 4), correcting sections 21 to 24, and a corrected **waveform signal generation** section 25. The primary correcting section 21 is formed out of a gain adjustment section 21a and an attenuated **waveform signal generation** section 21b. The section 21a adjusts the voltage level of a waveform **signal** from a **waveform generator**, or a **waveform signal** with polarity reversed in the section 19. Furthermore, the section 21b adjusts an input **signal** to an attenuated waveform **signal** having a different **time** constant. Each of output **signals** from the sections 21 to 24 is sent to a corrected **waveform signal generation** section 25, together with a waveform **signal** from the **waveform generator**, so that different attenuated waveform **signals** and waveform **signals** from the **waveform generator** are **synthesized** and amplified for transmission to a gradient magnetic field power supply.

46/3,AB/49 (Item 6 from file: 347)
DIALOG(R)File 347:JAPIO

04582166
MR SYSTEM

PUB. NO.: 06-254066 [JP 6254066 A]
PUBLISHED: September 13, 1994 (19940913)
INVENTOR(s): IMAHORI KIYOSHI
APPLICANT(s): SHIMADZU CORP [000199] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 05-063148 [JP 9363148]
FILED: February 28, 1993 (19930228)
JOURNAL: Section: C, Section No. 1284, Vol. 18, No. 648, Pg. 108, December 08, 1994 (19941208)

ABSTRACT

PURPOSE: To continuously **generate waveform data** related to plural pieces of waveforms while constituting the system so that a gain value can also be changed for every separate waveform without impairing the versatility of a pulse sequence.

CONSTITUTION: A continuous waveform instruction flag is set together with

various conditions for describing a waveform to a condition setting register file 61, and at the time of inputting an actuating **signal** , the flag is held by a flip-flop 65. A controller 62 checks the contents of the flag at the time point when a **data** output related to one waveform is finished, and starts a **data** output operation related to the next **waveform** by **generating** a self-actuating **signal**.

46/3,AB/50 (Item 7 from file: 347)
DIALOG(R)File 347:JAPIO

04313363
MR IMAGING DEVICE

PUB. NO.: 05-305063 [JP 5305063 A]
PUBLISHED: November 19, 1993 (19931119)
INVENTOR(s): SHIMIZU KIMIHARU
APPLICANT(s): SHIMADZU CORP [000199] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 04-137688 [JP 92137688]
FILED: April 30, 1992 (19920430)
JOURNAL: Section: C, Section No. 1170, Vol. 18, No. 111, Pg. 76, February 23, 1994 (19940223)

ABSTRACT
PURPOSE: To mitigate the effect of sound generation to the utmost and prevent a subject from being frightened or applied with uneasiness by generating the inclined magnetic field increased gradually in the period preceding the image pickup period repeated with image pickup sequences.

CONSTITUTION: A computer 20 controls the **wave-form** and timing of the inclined magnetic field **generated** by a **wave-form generator** 21, controls the **wave-form** and timing of the **RF** pulse from a **wave-form generator** 24, controls a **signal** generator 23 to generate the resonance-frequency **signal**, and controls the total sequences. The inclined magnetic field pulse is applied to be gradually increased in the period preceding the image pickup **scan** at the same cycle and duty cycle as those in the image pickup period, and it is applied to be gradually decreased in the period immediately after the image pickup period. The change of the sound in magnitude is smoothly continued, and a subject is prevented from being frightened or applied with uneasiness in the image pickup period.

46/3,AB/51 (Item 8 from file: 347)
DIALOG(R)File 347:JAPIO

03776041
MR IMAGING

PUB. NO.: 04-141141 [JP 4141141 A]
PUBLISHED: May 14, 1992 (19920514)
INVENTOR(s): OKAMURA SHOICHI
APPLICANT(s): SHIMADZU CORP [000199] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 02-263419 [JP 90263419]

FILED: September 30, 1990 (19900930)
JOURNAL: Section: C, Section No. 980, Vol. 16, No. [illegible]3, Pg. 71, September 02, 1992 (19920902)

ABSTRACT

PURPOSE: To obtain information on a size, position or the like of an object to be inspected in a short **time** by receiving an **NMR** **signal** applying an inclined magnetic field whose intensity of the magnetic field is inclined at which an **RF** pulse is generated to excite the object to be inspected.

CONSTITUTION: When a current is supplied to an inclined magnetic field coil 22 from an inclined magnetic field power source 32, an inclined magnetic field for slice selection, reading and phase coding is generated and when a **signal** from a **waveform generation** circuit 31 is sent to the inclined magnetic field power source 32, a waveform of the inclined magnetic field is determined. On the other hand, a carrier from a carrier generation circuit 35 is modulated in amplitude with an amplitude modulation circuit 34 according to a waveform to be sent from the **waveform generation** circuit 33 and sent to an **RF** transmitting/receiving coil 23 from an **RF** transmitting circuit 36 to irradiate an object 1 to be inspected with an **RF** excitation pulse. An **NMR signal** generated in the object 1 to be inspected is received with a transmitting/receiving coil 23 and after the detection thereof with a detection circuit 37, it is sampled with an A/D converter 38 to be converted into a digital **signal**. When inputted into a computer 39, the digital **data** undergoes a two-dimensional Fourier transform to reconstruct an image.

46/3,AB/52 (Item 9 from file: 347)
DIALOG(R)File 347:JAPIO

03670547
MAGNETIC RESONANCE IMAGING (**MRI**) DEVICE

PUB. NO.: 04-035647 [JP 4035647 A]
PUBLISHED: February 06, 1992 (19920206)
INVENTOR(s): OKAMURA SHOICHI
APPLICANT(s): SHIMADZU CORP [000199] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 02-144034 [JP 90144034]
FILED: May 31, 1990 (19900531)
JOURNAL: Section: C, Section No. 940, Vol. 16, No. 202, Pg. 102, May 14, 1992 (19920514)

ABSTRACT

PURPOSE: To set a slice easily and accurately by providing a control means or the like to control an inclined magnetic field **wave form** and an **RF signal wave form** depending on the set slice.

CONSTITUTION: When an instruction is delivered to correct the direction, the position, and the like of a slice, by operating a keyboard device 43 and a mouse 44, a slice figure to show the slice after correction is displayed on the screen of a CRT display device 42. And by repeating such an operation, optimum and accurate slice setting can be made. And when a number of slice setting relating to the left and the right optic nerves are finished, inclined magnetic field **wave forms** and **RF**

signal wave forms corresponding to a number of settings are found by a computer 41, and they are set in **wave form generating** circuits 31 and 33. After that, by carrying out a multi-angle **scanning**, the **data** of the set numerous slices are collected, and picture images as to the set numerous slices can be obtained simultaneously.

46/3,AB/53 (Item 10 from file: 347)
DIALOG(R)File 347:JAPIO

03303639
CONTROL **SIGNAL** GENERATING DEVICE FOR **MRI**

PUB. NO.: 02-279139 [JP 2279139 A]
PUBLISHED: November 15, 1990 (19901115)
INVENTOR(s): KOIKE MITSUTAKA
YAMAUCHI KENJI
APPLICANT(s): SANYO ELECTRIC CO LTD [000188] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 01-102534 [JP 89102534]
FILED: April 20, 1989 (19890420)
JOURNAL: Section: C, Section No. 802, Vol. 15, No. 48, Pg. 18, February 05, 1991 (19910205)

ABSTRACT

PURPOSE: To reduce the capacity of a memory, to cope with the complication of an image pickup condition and to simplify the constitution by providing a processing part for outputting a base **data** of a **data** memory in accordance with the contents of an instruction code of an instruction code memory, and a **signal** output part for outputting an output of the processing part as a control **signal** to a **waveform generating** part and a collecting part.

CONSTITUTION: A memory part 11 consists of a **data** memory 12 in which base **data** for each control **signal** is stored, and an instruction code memory 13 in which an instruction whose contents are a generation procedure of the control **signal**, the generation **time** and the continued time is stored at every block. A microprocessor (MPU) 14 being a processing part out puts necessary base **data** of the **data** memory 12 in accordance with the contents of an instruction code of a necessary block of the instruction code memory 13, according to a set image pickup condition. A **signal** converting circuit 15 being a **signal** output part converts a bit pattern output of the MPU 14 to a pulse, etc., and outputs it as a control **signal** suitably to a **waveform generating** part 3 and a **data** collecting part 6. In such a way, it will suffice that the quantity of **data** to be stored in the memory is small, a counter becomes unnecessary, and the constitution can be simplified.

46/3,AB/54 (Item 11 from file: 347)
DIALOG(R)File 347:JAPIO

03157107
PEAK SHIFT QUANTITY MEASURING METHOD FOR MAGNETIC RECORDING MEDIUM

PUB. NO.: 02-132607 [2132607 A]
PUBLISHED: May 22, 1990 (19900522)
INVENTOR(s): NAGAMURA SHOICHI
OTSUKI AKIHIRO
APPLICANT(s): FUJI ELECTRIC CO LTD [000523] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 63-285261 [JP 88285261]
FILED: November 11, 1988 (19881111)
JOURNAL: Section: P, Section No. 1088, Vol. 14, No. 360, Pg. 94, August 03, 1990 (19900803)

ABSTRACT

PURPOSE: To practically measure a peak shift quantity from an actual waveform and to discriminate its layers by measuring a peak shift component caused by a waveform and a peak shift component caused by a noise in respective specific methods.

CONSTITUTION: Continuous three worst patterns 31 to 33 pinched by solitary waves 2 and 4 are used for a write **signal** series. Further, for a jitter quantity in a time between the solitary waves 2 and 4, the read waveform in the central part of the worst patterns 31 to 33 which are not affected by the solitary waves 2 and 4 is **signal**-processed as it is, and the peak shift component caused by the waveform and the peak shift component caused by the noise are derived. Thus, the factor of **waveform** distortion **generated** at the **time** of digitizing the analog **signal** can be eliminated, the respective peak shift components together with the jitter quantity can be directly measured at high reliability, and the layers can be discriminated as well.

46/3,AB/55 (Item 12 from file: 347)
DIALOG(R)File 347:JAPIO

03104535
MAGNETIC RESONANCE IMAGING METHOD

PUB. NO.: 02-080035 [JP 2080035 A]
PUBLISHED: March 20, 1990 (19900320)
INVENTOR(s): KITAMURA KOJI
APPLICANT(s): TOSHIBA CORP [000307] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 63-231902 [JP 88231902]
FILED: September 16, 1988 (19880916)
JOURNAL: Section: C, Section No. 727, Vol. 14, No. 270, Pg. 58, June 12, 1990 (19900612)

ABSTRACT

PURPOSE: To obtain a T1 intensified picture and/or a low flip angle picture by constituting a device applying an RE pulse for single or multi-slice to collect an echo **signal** after a predetermined delay **time** synchronized with the specific point of a heart beat waveform thereafter applying the **RF** pulse in the predetermined timing further so as to collect no echo **signal**.

CONSTITUTION: A synchronous **signal** , based on a peak value of electrocardiogram waveform of a detected person P, is given to a computer system 9 from an electrocardiograph 12, and being based on this synchronous **signal** , R-R wave interval TRR is calculated, further a two equal division TRR/2 of a heart beat interval is calculated. The above action is

executed prior to **scanning**, after a predetermined time Td from the peak of the R-wave of the heart beat waveform, a 90 deg. pulse, 180 deg. pulse and an inclined magnetic field pulse are applied as an excitation procedure, for instance, as the first **RF** pulse by the spin echo method. By execution of this excitation procedure, an echo **signal** is induced, and one line **data** is obtained by collecting this echo **signal**. Next after the TRR/2 from the first **RF** pulse, when the second **RF** pulse is applied, the echo **signal** is induced by the execution of this excitation procedure but not collected.

46/3,AB/56 (Item 13 from file: 347)
DIALOG(R)File 347:JAPIO

03060880
OPTIONAL **WAVEFORM GENERATING** DEVICE

PUB. NO.: 02-036380 [JP 2036380 A]
PUBLISHED: February 06, 1990 (19900206)
INVENTOR(s): IWATSUBO MASAKATSU
HASEGAWA MASAYUKI
APPLICANT(s): YOKOGAWA ELECTRIC CORP [000650] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 63-186611 [JP 88186611]
FILED: July 26, 1988 (19880726)
JOURNAL: Section: P, Section No. 1038, Vol. 14, No. 191, Pg. 61, April 18, 1990 (19900418)

ABSTRACT

PURPOSE: To easily generate an optional modulated **waveform** by **generating** a **signal** which prescribes the appearance timing of a basic waveform by a modulating **data** generation part, inputting the basic waveform at the timing of this **signal**, and composing and outputting the **signal**.

CONSTITUTION: A microprocessor 16 generates a modulated **signal** by a program stored in a ROM 19 according to **data** inputted from a keyboard 20, and reads **data** on the basic wave out of a RAM 18 according to the generated **signal** and then stores it in a prescribed address of a video RAM 21. The addresses of the RAM 21 correspond to the **time** base of the output **signal** and the microprocessor 16 calculates addresses of the RAM 21 according to the modulated **signal** which is generated. The **data** stored in the address and the **data** on the basic wave read newly out of the RAM 18 are added and stored in an address. Thus, the composite waveform 15 is obtained and the waveform 15 which is stored on the RAM 21 is converted into an analog **signal**, which is outputted and displayed on a CRT 22.

46/3,AB/57 (Item 14 from file: 347)
DIALOG(R)File 347:JAPIO

01706648
NMR IMAGING APPRATUS

PUB. NO.: 60-185148 [JP 60185148 A]
PUBLISHED: September 20, 1985 (19850920)
INVENTOR(s): OIKAWA SHIRO

APPLICANT(s): SHIMADZU COR[illegible]000199] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 59-040883 [JP 8440883]
FILED: March 02, 1984 (19840302)
JOURNAL: Section: P, Section No. 428, Vol. 10, No. 38, Pg. 84, February 14, 1986 (19860214)

ABSTRACT

PURPOSE: To make it possible to perform high speed **data** sampling without imparting steep change to the intensity of a slant magnetic field, by forming the sampling period of an **NMR signal** so that the period is inversely proportional to the intensity of a slant magnetic field.

CONSTITUTION: By the output of a slant-magnetic-field **generating waveform generator** 1, electric power corresponding to the output of the **waveform generator** 1 is supplied to a slant-magnetic-field generating coil 3 from a slant-magnetic-field generating power source 2. Meanwhile, the output of the **waveform generator** 1 is inputted to a V/F vonverter 4, and a **signal** having a frequency that is proportional to an input voltage is outputted to a timing pulse generator 5. The timing pulses having an interval corresponding to the oscillating frequency of the converter 4 is inputted to an AD converter 6. An **NMR signal** is converted into a digital **signal** every **time** the timing pulses are generated, and the digital **signal** is transmitted to a computer. Thus the high speed **data** sampling can be performed without imarting steep change to the